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AUTHOR Willett, Terrence
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ABSTRACT

Explores English 100 eligibility and English 100 success prerequisites as enhancers of Cabrillo College (California) students' ability to succeed in Speech Communication, Criminal Justice, and Fire Technology. This study also tested for disproportionate impacts of the proposed prerequisites on ethnicity, gender, and disability groups. For all courses except Fire Technology, success rates significantly dropped as we moved from level 0, those who met no prerequisites, to level 1, those who just met English 100 eligibility. Increases in success rates were observed in all courses for those who just met level 2, successful completion of English 100, over success rates for levels 0 and 1. To experience increased success rates, at least successful completion of English 100 would have to be required. Unfortunately, this level of prerequisite would exclude one-third to one-half of all eligible students. A dramatic decline in enrollment would be the price of the modest increase in success rates achieved through an English 100 prerequisite. In addition, it appears that the imposition of a prerequisite at any level would exclude men, Hispanics, African-Americans, and Filipinos, and those with disabilities, especially learning disabilities, at higher rates than women, Whites, Asians, Native Americans, Pacific Islanders, and mainstream students. This exclusion generally increases with prerequisite level. (VWC)

Cabrillo College

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Terrence Willett
Research Technician
Planning and Research Office
831.477.5281
June 23, 2000

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An Evaluation of English 100 and Eligibility for English 100 as Potential Prerequisites for Speech Communication 1 and 2, Criminal Justice 1 and 2, and Fire Technology 1 and 2

Terrence Willett
PRO, Cabrillo College
June 23, 2000

Summary

- An English 100 prerequisite could be justified for Criminal Justice 1 and 2 and Speech Communication 1 and 2 but at a cost of a 30% to 50% drop in enrollment.
- Males, those with disabilities, and certain ethnic groups, particularly Hispanics, African-Americans, and Filipinos, are less likely to meet the prerequisites and may be disproportionately impacted by the imposition of the prerequisites.
- An English 100 prerequisite is not recommended.

Introduction

This report explores English 100 eligibility and English 100 success prerequisites as enhancers of students' ability to succeed in Speech Communication, Criminal Justice, and Fire Technology. This study also tested for disproportionate impacts of the proposed prerequisites on ethnicity, gender, and disability groups. The information in this report is updated and supercedes any previous reports with the same title.

Methods

The study included 6,161 Cabrillo College students enrolled between Spring 1993 and Spring 1998 in Speech Communication 1 (SPCOM1), Speech Communication 2 (SPCOM2), Criminal Justice 1 (CJ1), Criminal Justice 2 (CJ2), Fire Technology 1 (FT1), or Fire Technology 2 (FT2) collectively referred to as Course. Table 1 shows the distribution of students by Course. The analysis compared students' success in their Course with whether they had successfully completed the proposed prerequisite. Success is the proportion of students who received a grade of A, B, C, or CR. Grades of D, F, NC, and W were considered unsuccessful and grades of I, RD, UG, MW, and XX were omitted. This study explored two levels of prerequisite: eligibility for English 100 and English 100. Eligibility for English 100 included those who assessed into English 100 or higher or those who completed the English 100 prerequisite of English 255, 290, 292, or 101a-zz with a C or better or those who completed English 100 or 1A with a C or better. The English 100 prerequisite included those who assessed into English 1A or those who completed English 100 or 1A with a C or better. In all cases, the prerequisite condition had to be met prior to taking the Course in question.

Students were placed into one of four prerequisite levels. The lowest level (0) contained those who met no prerequisites. The next level (1) included those who met English 100 eligibility but had not completed English 100 or English 1A. The penultimate level (2) consisted of those who either successfully

completed or assessed beyond English 100 but not English 1A. The final level (3) encompassed those who successfully completed English 1A.

The study examined disproportionate impact by comparing rates of meeting each prerequisite level within ethnicity, gender, and disability groups for 18,427 students who had taken English between Fall 1993 and Fall 1999.

All data were analyzed with SPSS 10.0.5.

Table 1. Enrollment by Course between Spring 1993 and Spring 1999.

Course	N
CJ1	798
CJ2	534
FT1	19
FT2	28
SPCOM1	2740
SPCOM2	2927
Total	7046

Note: This table represents 6161 individual students.

Results and Discussion

For all courses except Fire Technology, success rates significantly dropped as we moved from level 0, those who met no prerequisites to level 1, those who just met English 100 eligibility (Table 2, Table 3, Table 4, Table 5, Table 6, Table 7). Fire Technology 1 and 2 show a similar pattern but Fire Technology 1 has some empty cells due to low enrollment. Increases in success rates were observed in all courses for those who just met level 2, successful completion of English 100, over success rates for levels 0 and 1. To experience increased success rates, at least successful completion of English 100 would have to be required. Unfortunately, this level of prerequisite would exclude one-third to one-half of all eligible students. A dramatic decline in enrollment would be the price of the modest increase in success rates achieved through an English 100 prerequisite.

In addition, it appears that the imposition of a prerequisite at any level would exclude men (Table 8, Figure 1), Hispanics, African-Americans, and Filipinos (Table 9, Figure 2), and those with disabilities, especially learning disabilities (Table 10, Figure 3), at higher rates than women, Whites, Asians, Native Americans, Pacific Islanders, and mainstream students respectively. This exclusion generally increases with prerequisite level.

A possible confounding factor is the student's High School. This is particularly true for comparing ethnicities, as ethnic groups are not distributed homogenously across the landscape. Looking at 8,545 students from the top "feeder" High Schools for Cabrillo (Aptos, Harbor, San Lorenzo Valley, Santa Cruz, Soquel, Watsonville), we see a significant difference in the proportions of those attaining various

prerequisite levels ($\chi^2 = 309.6$, $df = 15$, $p < 0.0005$). For example, Watsonville students, of whom 79% are Hispanic, are less likely to obtain either prerequisite and Harbor and San Lorenzo Valley students, of whom 78% and 83% respectively are White, are more likely to obtain either prerequisite. This suggests that some of the ethnicity differences could be related to differences in High School preparation that may or may not be related to socioeconomic factors that link ethnicity to economic and academic opportunities. However, looking at the proportion of Whites and Hispanics across prerequisite levels within each High School, we see that Hispanics are significantly less likely than Whites to meet higher prerequisite levels at all schools except San Lorenzo Valley (Table 11). This pattern is especially striking for Aptos High.

Ordinal regression shows that gender, ethnicity, disability, age, English as a first language, GPA level, education level, cumulative number of units attempted, and planned work hours can significantly predict the probability of prerequisite level ($\chi^2 = 4324.9$, $df = 24$, $p < 0.0005$; Nagelkerke $R^2 = 0.29$). Predicted probabilities of prerequisite levels for three 19 year old high school graduates with B averages who are working half-time and who have attempted about 10 units are shown in Figure 4. One is a White female without a disability, another is a Hispanic male with a disability, and the third is a Spanish speaking Hispanic male with a disability. The probabilities for the White female with no disability are skewed towards the higher prerequisite levels compared to the Hispanic males with disabilities. Having English as your first language somewhat increases the likelihood of the student being in a higher prerequisite level. It should be noted that the majority of the variability in whether a student meets one of the prerequisites is not accounted for by the factors included in this model. Other factors such as motivation and social and financial support may contribute greatly to attaining higher prerequisite levels.

Recommendations

While an English 100 prerequisite may be justifiable for Criminal Justice and Speech Communication, it would so greatly limit access and disproportionately impact certain groups as to be undesirable. Other avenues to increase mastery of course material with respect to English skills should be considered such as recommending English preparation, promoting campus tutoring services, or curriculum modifications.

Table 2. Success rates by prerequisite levels for Criminal Justice 1.

CJ1 Course Success		Prerequisite Level				Total
		0	1	2	3	
Fail	Count	132	68	38	11	249
	Percent	39.2	47.9	21.8	16.2	34.5
Succeed	Count	205	74	136	57	472
	Percent	60.8	52.1	78.2	83.8	65.5
Total	Count	337	142	174	68	721
χ^2	36.9					
df	3					
p	< 0.0005					

Table 3. Success rates by prerequisite levels for Criminal Justice 2.

CJ2 Course Success		Prerequisite Level				Total
		0	1	2	3	
Fail	Count	72	25	24	4	125
	Percent	26.4	38.5	20.2	7.0	24.3
Succeed	Count	201	40	95	53	389
	Percent	73.6	61.5	79.8	93.0	75.7
Total	Count	273	65	119	57	514
χ^2	18.1					
df	3					
p	0.0004					

Table 4. Success rates by prerequisite levels for Fire Technology 1.

FT1 Course Success		Prerequisite Level				Total
		0	1	2	3	
Fail	Count	2	1	1	1	5
	Percent	28.6	100.0	11.1	50.0	26.3
Succeed	Count	5		8	1	14
	Percent	71.4		88.9	50.0	73.7
Total	Count	7	1	9	2	19
χ^2	4.5					
df	3					
p	0.21					

Table 5. Success rates by prerequisite levels for Fire Technology 2.

FT2 Course Success		Prerequisite Level				Total
		0	1	2	3	
Fail	Count	3	3		2	8
	Percent	30.0	42.9		25.0	27.6
Succeed	Count	7	4	4	6	21
	Percent	70.0	57.1	100.0	75.0	72.4
Total	Count	10	7	4	8	29
χ^2	2.4					
df	3					
p	0.49					

Table 6. Success rates by prerequisite levels for Speech Communication 1.

SPCOM1 Course Success		Prerequisite Level				Total
		0	1	2	3	
Fail	Count	256	59	84	89	488
	Percent	20.9	29.8	18.0	11.4	18.3
Succeed	Count	968	139	383	690	2180
	Percent	79.1	70.2	82.0	88.6	81.7
Total	Count	1224	198	467	779	2668
χ^2	47.8					
df	3					
p	< 0.0005					

Table 7. Success rates by prerequisite levels for Speech Communication 2.

SPCOM2 Course Success		Prerequisite Level				Total
		0	1	2	3	
Fail	Count	168	45	38	58	309
	Percent	13.1	24.9	7.5	6.6	10.8
Succeed	Count	1110	136	471	826	2543
	Percent	86.9	75.1	92.5	93.4	89.2
Total	Count	1278	181	509	884	2852
χ^2	66.6					
df	3					
p	< 0.0005					

Table 8. Prerequisite level by gender.

		Prerequisite Level				
		0	1	2	3	Total
Female	Count	1222	2159	3463	2945	9789
	Percent	44.1	47.8	56.6	59.1	53.2
	Adj. Res.	-10.5	-8.4	6.5	9.7	
Male	Count	1550	2355	2656	2041	8602
	Percent	55.9	52.2	43.4	40.9	46.8
	Adj. Res.	10.5	8.4	-6.5	-9.7	
Total	Count	2772	4514	6119	4986	18391
	Percent	100	100	100	100	100
	χ^2	242.1				
	df	3				
	p	< 0.0005				

Note: Adj. Res. = adjusted residual. Values less than -2 and greater than +2 indicate large departures from values expected if students were equally distributed among prerequisite levels. Negative values indicate observed values are lower than expected and positive values show that observed values are higher than expected.

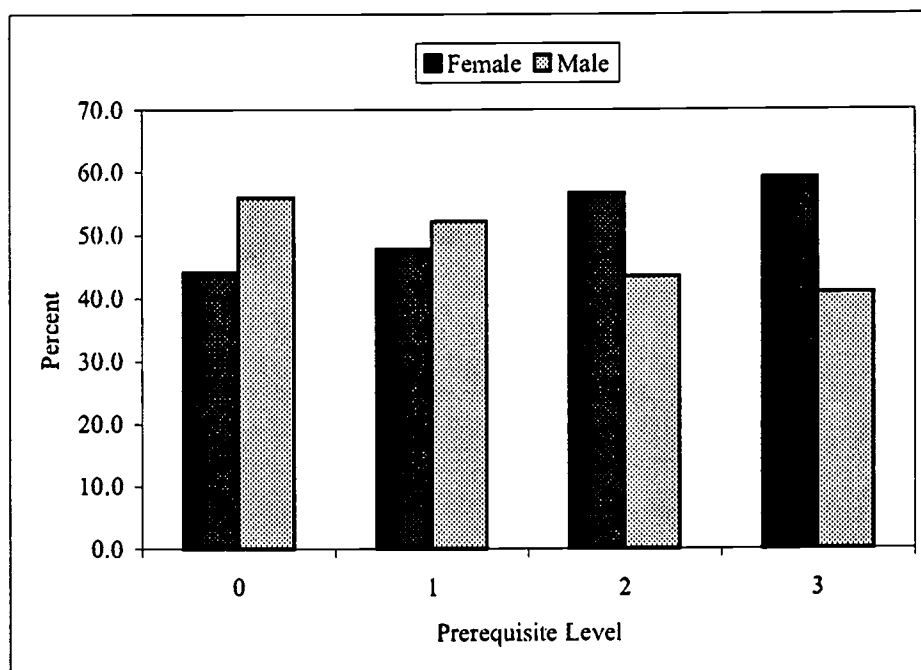


Figure 1. Prerequisite level by gender.

Table 9. Prerequisite level by ethnicity.

		Prerequisite Level				
		0	1	2	3	Total
African-American	Count	62	126	105	79	372
	Percent	2.2	2.8	1.7	1.6	2.0
	Adj. Res.	0.9	4.2	-2.1	-2.6	
Asian	Count	107	189	272	213	781
	Percent	3.9	4.2	4.4	4.3	4.2
	Adj. Res.	-1.1	-0.2	0.9	0.1	
Filipino	Count	83	72	98	57	310
	Percent	3.0	1.6	1.6	1.1	1.7
	Adj. Res.	5.8	-0.5	-0.6	-3.5	
Hispanic	Count	1187	1849	1652	839	5527
	Percent	42.8	41.0	27.0	16.8	30.1
	Adj. Res.	15.9	18.4	-6.4	-23.9	
Native American	Count	50	75	105	80	310
	Percent	1.8	1.7	1.7	1.6	1.7
	Adj. Res.	0.5	-0.1	0.2	-0.5	
Other	Count	24	63	79	75	241
	Percent	0.9	1.4	1.3	1.5	1.3
	Adj. Res.	-2.2	0.6	-0.2	1.4	
Pacific Islander	Count	18	19	32	23	92
	Percent	0.6	0.4	0.5	0.5	0.5
	Adj. Res.	1.2	-0.9	0.3	-0.5	
White	Count	1241	2121	3776	3620	10758
	Percent	44.8	47.0	61.7	72.6	58.5
	Adj. Res.	-15.9	-18.1	6.2	23.7	
Total	Count	2772	4514	6119	4986	18391
	Percent	100	100	100	100	100
	χ^2	1078.9				
	df	24				
	p	<0.0005				

Note: Adj. Res. = adjusted residual. Values less than -2 and greater than +2 indicate large departures from values expected if students were equally distributed among prerequisite levels. Negative values indicate observed values are lower than expected and positive values show that observed values are higher than expected.

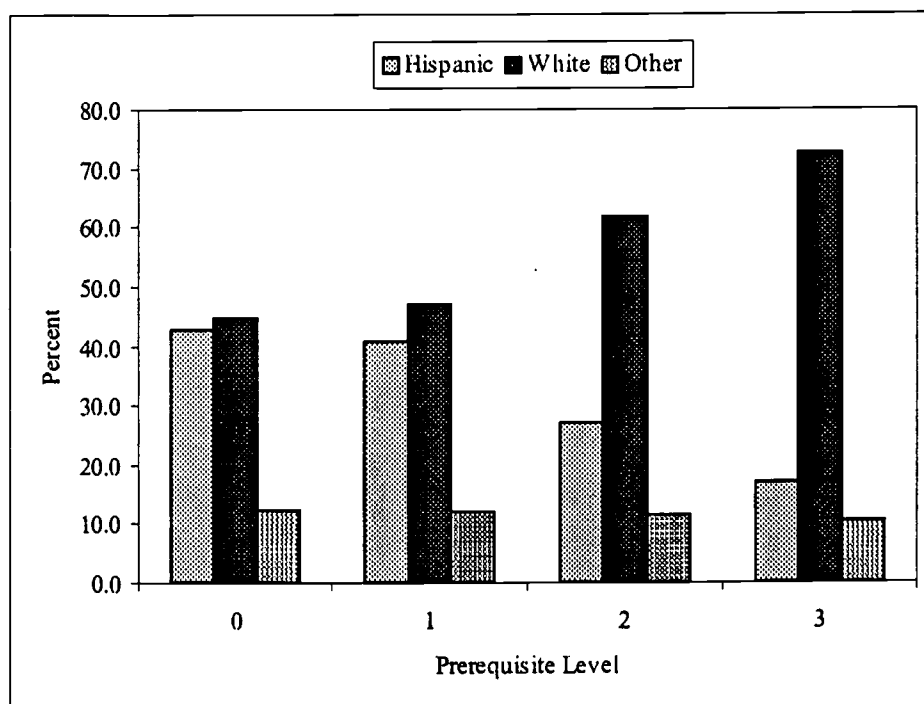


Figure 2. Prerequisite level by ethnicity.

Table 10. Prerequisite levels between disabled and mainstream students.

Disability		Prerequisite Level				Total
		0	1	2	3	
Learning	Count	145	168	148	97	558
	Percent	5.2	3.7	2.4	1.9	3.0
	Adj. Res.	7.3	3.1	-3.4	-5.2	
Other	Count	82	112	130	91	415
	Percent	3.0	2.5	2.1	1.8	2.3
	Adj. Res.	2.7	1.2	-0.9	-2.4	
None	Count	2546	4248	5853	4807	17454
	Percent	91.8	93.8	95.5	96.2	94.7
	Adj. Res.	-7.4	-3.1	3.2	5.6	
Total	Count	2773	4528	6131	4995	18427
	Percent	100	100	100	100	100
	χ^2	94.5				
	df	6				
	p	< 0.0005				

Note: Adj. Res. = adjusted residual. Values less than -2 and greater than +2 indicate large departures from values expected if students were equally distributed among prerequisite levels. Negative values indicate observed values are lower than expected and positive values show that observed values are higher than expected.

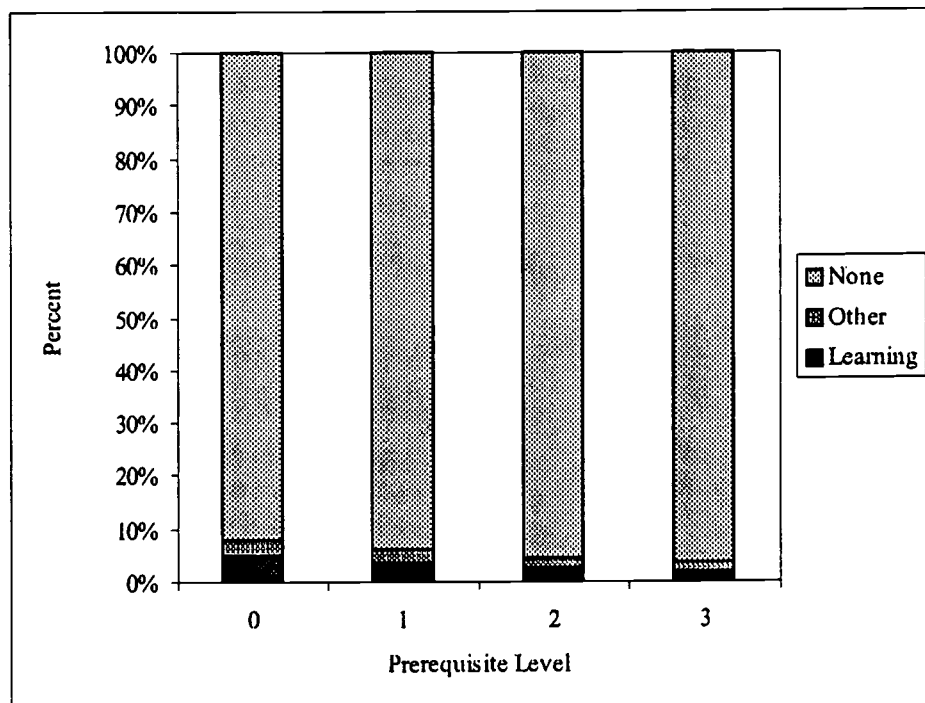


Figure 3. Prerequisite level by disability.

Table 11. Prerequisite level between Hispanics and Whites by High School.

			Prerequisite Level				
High School			0	1	2	3	Total
Aptos High	Hispanic	Count	163	184	182	106	635
		Percent	70.0	48.9	41.5	28.3	44.6
	White	Count	70	192	257	269	788
		Percent	30.0	51.1	58.5	71.7	55.4
	Total	Count	233	376	439	375	1423
		Percent	100	100	100	100	100
Harbor High	Hispanic	Count	25	33	55	31	144
		Percent	21.9	18.9	15.2	8.9	14.4
	White	Count	89	142	307	318	856
		Percent	78.1	81.1	84.8	91.1	85.6
	Total	Count	114	175	362	349	1000
		Percent	100	100	100	100	100
San Lorenzo Valley High	Hispanic	Count	14	16	24	21	75
		Percent	15.1	9.5	7.9	7.0	8.7
	White	Count	79	152	280	280	791
		Percent	84.9	90.5	92.1	93.0	91.3
	Total	Count	93	168	304	301	866
		Percent	100	100	100	100	100
Santa Cruz High	Hispanic	Count	79	106	104	55	344
		Percent	39.5	42.1	25.9	16.4	28.9
	White	Count	121	146	298	280	845
		Percent	60.5	57.9	74.1	83.6	71.1
	Total	Count	200	252	402	335	1189
		Percent	100	100	100	100	100
Soquel High	Hispanic	Count	47	50	55	37	189
		Percent	28.1	21.1	13.4	9.8	15.8
	White	Count	120	187	356	342	1005
		Percent	71.9	78.9	86.6	90.2	84.2
	Total	Count	167	237	411	379	1194
		Percent	100	100	100	100	100
Watsonville High	Hispanic	Count	375	583	523	272	1753
		Percent	85.6	89.8	81.6	75.8	84.0
	White	Count	63	66	118	87	334
		Percent	14.4	10.2	18.4	24.2	16.0
	Total	Count	438	649	641	359	2087
		Percent	100	100	100	100	100
Chi-Square Tests							
	χ^2	df	p				
Aptos High	105.7	3	< 0.0005				
Harbor High	16.9	3	0.0008				
San Lorenzo Valley High	6.3	3	0.10				
Santa Cruz High	59.3	3	< 0.0005				
Soquel High	36.3	3	< 0.0005				
Watsonville High	38.1	3	< 0.0005				

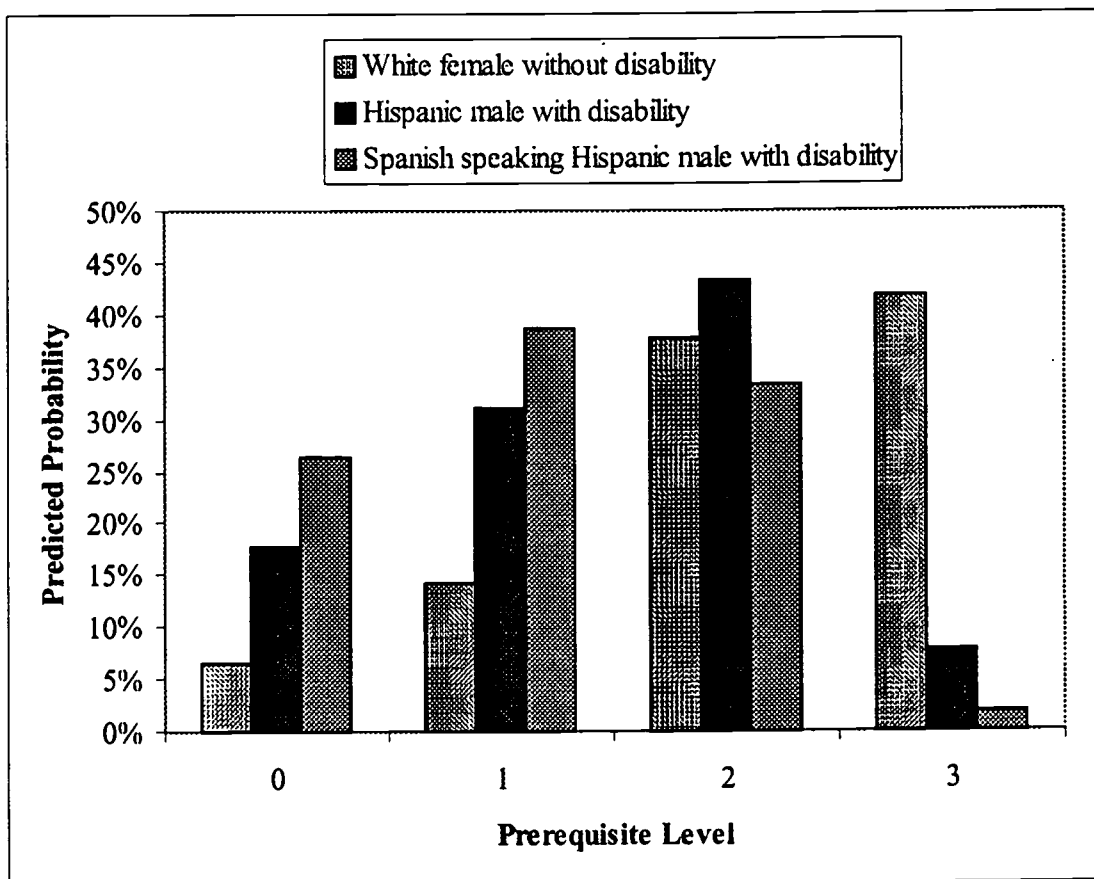


Figure 4. Prerequisite levels predicted by ordinal regression for 3 student profiles.



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